I Claim:

1. A method for operating a switch connected in series with a primary coil of a transformer in a free-running switch mode power supply, a secondary coil of the transformer being coupled to output terminals carrying an output voltage, the switch being switched on when the primary coil reaches a predetermined magnetization state, which comprises the steps of:

applying an input voltage to a series circuit formed by the primary coil and the switch;

providing a control signal for controlling power consumption;

providing a modulation signal; and

providing a drive signal for driving the switch, the drive signal containing a recurrent pulse sequence having at least one first switching-on pulse with a first pulse duration and at least one second switching-on pulse with a second pulse duration, a pulse duration of at least one of the first and second switching-on pulses being modulated by the modulation signal within a range predetermined by the control signal.

2. The method according to claim 1, which further comprises forming an overall time for which the first and second

switching-on pulses are switched on, which is a sum of times for which all the pulses in the pulse sequence are switched on, to be dependent on the modulation signal.

3. The method according to claim 2, which further comprises setting relationships between the times for which the first and second switching-on pulses are switched on and the modulation signal such that a mean power level, which is recorded for each pulse sequence through input terminals, is at least approximately constant assuming that the control signal remains constant.

4. The method according to claim 2, which further comprises setting relationships between the times for which the first and second switching-on pulses are switched on and the modulation signal such that a mean power level, which is recorded for each pulse sequence through input terminals, is subject to fluctuations of less than 1% with respect to a mean value of the mean power level averaged over at least two pulse sequences, assuming that the control signal remains constant.

5. The method according to claim 1, which further comprises:

setting the first pulse duration of the first switching-on pulse to be proportional to the control signal; and

setting the second pulse duration of the second switching-on pulse to be proportional to the first pulse duration, with a proportionality factor by which the second pulse duration is dependent on the first pulse duration being modulated within predetermined limits by the modulation signal.

6. The method according to claim 5, which further comprises choosing limits within which the second pulse duration is varied such that a mean power level consumed by the switch mode power supply remains at least approximately constant, assuming that the control signal remains constant.

7. The method according to claim 5, which further comprises choosing limits within which the second switched-on duration is varied such that a mean power level consumed by the switch mode power supply is subject to fluctuations of less than 1%, assuming that the control signal remains the same.

8. The method according to claim 1, which further comprises forming the recurrent pulse sequence with m first switching-on pulses each having the first pulse duration, and n second switching-on pulses each having the second pulse duration.

9. The method according to claim 8, which further comprises setting m = 2 and n = 1.

10. The method according to claim 8, which further comprises setting the range within which the second pulse duration is modulated by the modulation signal to be between 0.3 times and 0.5 times the first pulse duration.

11. The method according to claim 1, which further comprises forming the modulation signal as one of a random signal and a pseudo-random signal.

12. The method according to claim 1, which further comprises forming the range within which the switched-on duration of the at least one of the first and second switching-on drive pulses in the recurrent pulse sequence, whose pulse duration is modulated by the modulation signal, to be dependent on a maximum magnetization of the primary coil in each switching-on process.

13. The method according to claim 12, wherein a difference between the first and the second pulse duration tends to zero when the power consumption is so high that the maximum magnetization of the primary coil is reached.

14. A drive circuit for a switch connected in series with a primary coil of a transformer of a free-running switch mode power supply, the drive circuit comprising:

a first input terminal for receiving a control signal governing power consumption;

a second input terminal for receiving a magnetization signal being dependent on a magnetization state of the primary coil;

an output terminal providing a drive signal;

a signal generating circuit connected to said output terminal and said second input terminal, said signal generating circuit receiving the magnetization signal and a reference signal being dependent on the control signal, said signal generating circuit generating the drive signal containing a sequence of switching-on pulses, a start of a switching-on pulse in each case being predetermined by the magnetization signal, and a duration of the switching-on pulse being predetermined by the reference signal;

a reference signal generating circuit connected to said first input terminal and said signal generating circuit, said reference signal generating circuit receiving the control signal and generating the reference signal, said reference signal generating circuit containing:

a signal generator providing a modulation signal;

a weighting circuit connected to said signal generator and said first input terminal, said weighting circuit receiving the control signal and the modulation signal and providing a weighted control signal weighted on a basis of the modulation signal; and

a changeover switch having switching positions, and on a basis of said switching positions, the control signal or the weighted control signal being provided as the reference signal.

15. The drive circuit according to claim 14, wherein said reference signal generating circuit has a counter connected to and operating said changeover switch and counts drive pulses in the drive signal.

16. The drive circuit according to claim 14, wherein said weighting circuit has a signal divider with a division ratio set within predetermined limits by the modulation signal, said signal divider receiving the control signal and has a signal tap at which the weighted control signal can be tapped off.